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AUTHOR	Hickrod, George Alan Karnes; And Others
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ABSTRACT

This study surveys the history of school finance equity in Illinois after the major reforms introduced in that state in 1973 and then evaluates the success of the Illinois general grant-in-aid system. The authors describe the reform coalition that altered Illinois school funding in 1973 and trace the rise and subsequent erosion of those efforts. Using both disparity and fiscal neutrality indexes, the authors analyze distribution of general state aid and local revenues over the 11 fiscal years since 1973. Most of the indexes show the effects of the 1973 reform to have been lost in elementary school funding as early as 1980, though some gains may still be found in high school funding equity. A prognosis for future reforms in the political climate of the 1980's is included. (JW)

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THE DECLINE AND FALL OF SCHOOL FINANCE REFORM IN ILLINOIS

A Study of the Politics of School Finance: 1973 to 1983

George Alan Karnes Hickrod
Ramesh Baldeodas Chaudhari
Benjamin Callaway Hubbard

With assistance from:
Boon Yiu Lee
Philip Lake

Center for the Study of Educational Finance
Department of Educational Administration and Foundations
College of Education
Illinois State University
Normal, Illinois 61761

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All that is human must retrograde if it does not advance.

—Edward Gibbon

He that will not apply new remedies must expect new evils, for time is the greatest innovator.

—Francis Bacon

We are reformers in spring and summer; in autumn and winter we stand by the old; reformers in the morning, conservers at night. Reform is affirmative, conservatism negative; conservatism goes for comfort, reform for truth.

—Ralph Waldo Emerson

In politics again, it is almost a commonplace, that a party of order or stability, and a party of progress or reform, are both necessary elements of a healthy state of political life; until the one or the other shall have so enlarged its mental grasp as to be a party equally of order and of progress, knowing and distinguishing what is fit to be preserved from what ought to be swept away.

—John Stuart Mill

All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost.

—National Commission on Excellence in Education (Gardner Report) 1983

If great undertakings of mankind, such as the rise and fall of the Roman Empire, have their periods of both growth and decay, then so too must those smaller and more humble efforts of men such as school finance reform. This appears to have been the case at any rate in Illinois. Thus, it is the less than pleasant duty of this monograph to chronicle the progress, followed then by the decline, of school finance reform efforts on the sweeping prairies once trod by the proud Illini. No dirge this, however. If our sad lament is to profit readers very much, we need to unfold as clearly as we can the reasons for the collapse of the reform efforts so bravely unveiled in the early 1970s. Nor is this a solo performance. As a forthcoming issue of the Journal of Education Finance makes clear, the theme of progress, followed then by retreat, is unfortunately a familiar one in a number of other states as well. If the Phoenix of school finance reform is to arise from its own ashes, then it is essential to understand the reasons for the collapse of these efforts.

We wish it understood that our sorrowful tale of success, followed by failure, has been told here solely in terms of the attainment or lack of attainment of equity goals. There are many other criteria by which a school finance "reform" can be judged: adequacy, efficiency, meeting student needs, meeting district needs, providing family choice, etc., etc. The evaluation of Illinois school finance reform in these other terms we leave to another time and place, or perhaps to the attention of others. There can be no question, however, that many of the reformers of 1973 in Illinois thought in terms of the attainment of equity goals as the raison d'etre of their efforts. Accordingly, we feel justified in concentrating on that one facet of school finance evaluation. We proceed by describing in general terms the school finance reform events that have unfolded in Illinois since 1973; we follow this with a section describing the values which underpin the evaluation procedures; we then proceed with a description of our procedures for monitoring school finance equity in Illinois, and state the results of that monitoring process; we conclude by trying to answer the "why" of the collapse of school finance equity efforts in Illinois and the prospects, if any, for further reform in that state.

THE REFORM OF 1973

Looking backward, it is clear that most of the circumstances outlined by the late Joel Berke as "favorable" to school finance reform were present in Illinois in the summer of 1973.[1] Starting as early as 1969, a group of university professors had experimented with new forms of grants-in-aid and with new ways of measuring equity in Illinois.[2] None of this, however, had been enacted into law or had even caused much attention in legislative circles. The Serrano decision in 1971 changed all that. That decision brought a flurry of activity to the state and caused the work of the professorial group to be seriously considered by a set of influential legislators. In 1972 and 1973 there were no less than three "blue ribbon" committees working on new forms of funding for K-12 education in Illinois. The Governor appointed a committee, the state superintendent appointed a second committee, and the legislature, not to be outdone, set up its own

third committee.[3] Fortunately, there was overlapping membership on all three of these committees, and that overlap helped considerably in finally bringing a package to the General Assembly that could be enacted into law. Individual legislators simply cannot be given too much credit here.[4] They may have drawn their fundamental ideas from the universities, but the execution and transformation of those ideas into statuatory law were largely the result of long hours of toil and dedication by that group of legislators. It must be remembered that there had been no constitutional challenge to the Illinois school finance system but several important members of the General Assembly managed nevertheless to impress upon their colleagues the possibility, indeed imminent likelihood, that such a challenge could and would occur. The national school reform "network" described elsewhere by others[5] feed their concepts, biases, and above all their measurement techniques through Illinois universities, and these ideas and procedures were then utilized by opinion leaders in the state legislature.

There were other favorable circumstances as well. A Republican Governor had endorsed the principles of the 1972 "blue ribbon" committees but was defeated in the 1972 November election. However, the "reform" was fortunately not identified with that outgoing Governor and the new Governor, of the opposite party, accepted much of the thinking presented in the "blue ribbon" reports that had been published in 1972 and early 1973. Helping considerably in this process was the acceptance of the thrust of the committees' reports by the staff of the Governor's newly-created Bureau of the Budget. Many of the personnel in that Bureau carried over into the next administration's staff. Only recently has the importance of legislative aides and Governor's staffs been recognized in the literature dealing with school finance reform.[6] The 1972-73 affair in Illinois illustrates the importance of the "collective memory" of the legislative and gubernatorial staff.

Not all circumstances were favorable, however. The Illinois School Problems Commission and the state education department became locked in a struggle over whose version of "reform" was to be passed by the legislature. This was largely due to the fact that the elected state superintendent was of one party and the majority on the Problems Commission was of another party.[7] This struggle almost spelled the defeat of the 1973 reform measures. However, some last-minute heroic efforts by a university professor, now retired, by several legislators and by the then associate state superintendent enabled a compromise bill to pass. This bill was surely not a very elegant product; indeed, it was referred to in some circles as "that awful two-headed monster." Nevertheless, there were enough "side payments" made to enough constituencies to muster the votes needed for passage. The passage caused one senior legislator to mutter, "Well, Illinois has done it again. We always pass a Christmas tree with a gift hung on it for everybody. Then we figure out the wiring later." This leads us to the final very, very important circumstance. New state money was available for making those "side payments." Much of these new funds came from federal revenue sharing which became available to the state in FY1974. The passage of the state income tax in 1969 also contributed greatly to the state's fiscal condition in the early 1970s. Also, the reform group had been wise enough to "phase in" the cost of the reform over a period of years. The new Democratic

Governor accepted this, though later was known to be very uncomfortable with having committed that much new funding to K-12 education for the next several years.

There is also the question of property tax relief. Here again the importance of gubernatorial and legislative staff is apparent. In the summer of 1973 the Governor had both a general property tax freeze and the reform measure on his desk. The two measures, though clearly incompatible with each other, had both been passed by the legislature. It was the staff, aided and abetted by the professorial group and a handful of legislators, who urged the Governor to sign the reform and veto the tax freeze. The rationale was that the reform would provide more funds to districts which had taxed themselves more heavily and less funds to those districts that had taxed themselves less. In this sense the reform measure was more sensitive than an across-the-board property tax freeze. Indeed, the reform did exactly that, since the measure was of the "guaranteed tax yield" or "district power equalizing" variety, which was known within Illinois as the "Resource Equalizer." What was not pointed out to the Governor was that the proposed grant-in-aid system was compatible with property tax relief only in the short run. By contrast, in the long run, the system would actually stimulate the passage of more local property taxes, since it was also of a "reward for effort" nature. All other things remaining equal, in the 1973 reform the more a district taxed, the more state aid it got, within the parameters of the formula. In the 20/20 of hindsight, it is clear that many members of the General Assembly thought they were voting for property tax relief in the summer of 1973 and the Governor signed the reform bill in that same spirit. This is not the first time, of course, that a school finance reform bill has been sold wrapped in the sheepskin of property tax relief, nor will it likely be the last.

The technical details of the 1973 reform have been described and analyzed in other publications and need not detain us here.[8] Fundamentally, a district gained more state aid if it had a high tax rate and a low assessed valuation. In that particular form, the bill was the greatest thing for suburbs with lots of children to educate and with modest property valuations since Santa Claus or ice cream cones. By contrast, it was not of great assistance to the rural areas of the state. But the 1973 reform also included a "poverty impaction" provision such that, as the concentration of poverty children in a district increased, the district received more state funding. That provision was added to the reform package by those interested in assisting the central cities. And it has certainly been of great help to the central cities and to poverty pockets in the deep southern part of Illinois. This was a most expensive "side payment." Indeed, some thought at the time, and many more have thought since that time, that this aspect of the 1973 reform was far more than a "side payment," but rather was at the very heart of the reform itself. However, the 1973 reform was sold on such notions as "equal expenditure for equal effort" and on general Serrano-type equity grounds current at that time. It was not sold on the basis of any help it might give to the large poverty-impacted school districts in Illinois. The poverty impaction factor has had a stormy political life since its birth in 1973. This may well be an instance in which a "side payment"

became more important than other aspects of the reform as time continued to pass.

LEGISLATIVE CHANGES AFTER 1976

In 1974 and 1975 the basic structure of the reform held fast and no major changes were made in the method of funding K-12 education in Illinois. Local superintendents must look back upon this period as some sort of "golden age" since they are unaccustomed in Illinois to being able to plan on state support with that degree of certainty and confidence. "The formula game," said one senior legislator, "is the greatest game in town, and we set a new table every year." As early as 1976 however the fabric of the 1973 legislation started to unravel—but only a little. The reformers had attempted to provide an element of direct property tax relief through a provision in the law that required a property tax roll-back. This was another concession to those in the Governor's office who wanted more of property tax relief than they did of school finance reform. This provision was repeated from the reform at the insistence of a coalition of property-wealthy districts who wanted both more state aid and the retention of their ability to raise funds at the local level. The repeal of the rollback was the first of many blows that were to follow aimed at the equity aspects of the bill. A struggle also arose in 1976 over the "access" of elementary and unit districts to state aid compared to the access of high school districts to state aid. This struggle was to rage for many years; in fact, it is still present. This fight over state aid between types of districts makes very little sense to anyone outside of Illinois; and indeed, from a strictly educational point of view, it makes very little sense within Illinois. However, one suspects that the controversy between unit, elementary, and high school districts further weakened support for the 1973 reform.

1977 was another quiet year, but 1978 saw the garment of the 1973 reform showing major signs of wear and tear. Wealthier districts discovered a means of gaining more funds by increasing the flow of funding into one of the two heads of the "two-headed monster," that is, the modified Strayer-Haig portion of the 1973 reform which now existed simultaneously with the newer "Resource Equalizer." 1978 also saw the beginning of the manipulation of the poverty impaction factor; the most important aspect of this manipulation was to draw funds away from Chicago and from some of the other highly poverty-impacted districts of the state. In 1979 funds continued to flow into the property valuation wealthier districts which were concentrated in the older Strayer-Haig portion of the two-headed formula.

In 1979, however, a major blow was also struck at the heart of the "reward for effort" aspects of the 1973 reform. By this time it had become obvious that one could not reconcile a "reward for effort" notion with a desire for local property tax relief and throughout this whole period the clamor for property tax relief had been growing. Yielding to this pressure the General Assembly began the process of converting the grant-in-aid formula back into something approaching an old-fashioned foundation program. Removing the "reward for effort" aspect also helped

solve some of the controversy between unit, elementary, and high school districts. In 1980 the "two-headed monster" was finally slain and all districts were put under the "resource equalizer." However, by this time the "resource equalizer" was hardly recognizable as the same reform package that had been passed in 1973. In 1980 a new "alternate method" was devised for the computation of state aid which again provided more funds for the property wealthier districts. In 1980 St. George may have tidied up the formula when he slew the two-headed monster, but he did very, very little for equity goals in the state. In 1981 the poverty factor was weakened as a source of funding and adjustments were made for corporate personal property tax replacement monies. In 1982 the poverty factor was again weakened, this time to the lowest point since its original passage in 1973.

Trying to see the forest and not the trees is difficult in school finance in Illinois, but it seems clear that at least three things happened after 1976. First, the big "winners" in the 1973 reforms, that is the suburbs and the central cities, could not hold on to their gains. The more rural districts of the state felt they had been left out of the 1973 reform and a "downstate revolt" occurred after 1976 or 1978. This caused a flow of funds into the more property wealthy districts in the middle of the state. Second, and probably more important, the increments of new state funding for K-12 education began to dry up. The big increases in state funding were in the first three or four years after the 1973 reform. Thereafter, while funding from the local revenue side continued to increase, the state increases did not keep pace with the local revenue side. By the early 80s, an actual decrease in state funding was recorded. Third, we know from separate studies conducted by the Center and reported elsewhere[9] that, at least as far as the Unit districts are concerned, the wealthier districts increased their assessed valuations faster than the poor districts. We also know the wealthier districts also increased their tax rates faster than the poor districts. In sum then, the flow of state aid decreased in Illinois; that reduced state aid flow was then partially diverted to the property wealthier districts; the wealthier districts also increased their revenues faster from their own property tax bases than did the poor districts. There is an important, and often overlooked, point here regarding the attainment of equity goals. Equity attainment depends not only upon the actions of a state legislature, but also upon what is simultaneously happening at the local level relative to local tax referenda and shifts in local property tax base. Given all these events, it should come as no great surprise to anyone that the State of Illinois did not move toward equity goals after 1976. It is to that record that we now turn. First, however, we must say a few words about the monitoring techniques we have used in Illinois and about the basic values that underpin those evaluation techniques.

VALUES UNDERPINNING THE EVALUATION TECHNIQUES

Reforms of any type are guided by certain principles. Evaluations of these reforms cannot take place unless and until these principles are carefully stated and operationally defined. These principles are usually values—often values of a social, economic, political, and legal nature.

H. Thomas James has noted that our need for philosophers—particularly social, political, and legal philosophers—is urgent at this juncture in the history of school finance.[10] While we cannot lay claim to a philosopher's mantle, we can, and shall, make an honest attempt to state the underlying value assumptions upon which the criteria for this evaluation of the general K-12 grant-in-aid system in Illinois rest. Such an undertaking is not without cost to us. Those who do not agree with the underlying value assumptions, and their number may be increasing, will doubtless attack the credibility of the study by rejecting the values upon which it is based. However, decent regard for intellectual integrity requires that we proceed in this manner rather than to try to obscure the value assumptions from which the empirical work has been launched. There are other reasons for making our values as clear as possible. While the work reported here was undertaken primarily for the use of the state legislature, we have reason to believe the results may also be of interest to the state judiciary. If the values upon which the empirical work rests are made clear, then the utilization of the research for litigation purposes should be facilitated.

The fundamental value upon which this evaluation rests is that of "equalization of educational opportunity." As Ravitch and Wirt have made clear, this value has long been the centerpiece of a liberal or progressive philosophy of education.[11] In school finance literature, this value is often discussed in terms of "student equity," and it leads directly to an empirical test known as "wealth neutrality" or "fiscal neutrality." This test is also associated with litigation arising under the "equal protection" and "education" clauses or articles of most state constitutions. In short, we believe it to be unethical, unprofessional, and probably repugnant to the intent of the Illinois Constitution (although only the Illinois courts can determine this) for the quality of a child's education to be determined by the wealth of a school district in which that child and his or her parents happen to reside. To the extent that the wealth of an Illinois district determines what kind of education an Illinois child receives, to that same extent has equality of educational opportunity been denied to the children of the state. To make the quality of a child's education a function of district wealth is just as suspect to us as making the quality of that education a function of race, creed, or sex. When the level of public educational services offered to a child is drastically curtailed due to the absence of sufficient property valuations to support those services, then that child's civil rights have been violated just as surely as if the services were reduced or denied to him or her because of race, creed, or sex. We thus believe that the level of public educational services may vary by educational need, but they should not vary by the wealth of the child's family and the family's neighbors. Note the deliberate use of the term "public" educational services. If one believes that family wealth should indeed determine the level of educational services offered to a child, then the private sector is available to those who hold such beliefs. We do subscribe, as do many of our colleagues, to the healthy existence of an "alternative" private educational sector, which permits education to be a function of personal wealth. But a child is also a citizen, and a citizen is not being given the "equal protection" of the law when the law allows public educational services to be a function of local district wealth. Nor do we believe

that a child can be educated "to the full extent of his or her capacities" if the educational service level is a function, not of those capacities, but rather a function of local wealth. We have therefore evaluated the effect of the Illinois general grant-in-aid system on the basis of whether that grant-in-aid has reduced the relationship between revenues available and local district wealth. If a "reform" reduces this relationship between monies available for education and wealth, it is deemed successful. If the relationship is not reduced, or if the relationship increases, then the reform is deemed not successful.

There is a second school finance specification which helps us to operationally define the fundamental value of "equalization of educational opportunity." This is simply the disparity of revenue levels between school districts. In school finance literature this value is sometimes discussed in terms of "permissible variance" of revenue levels. The notion is that there is some amount of variation in expenditure or revenue levels that is "allowable" by the courts and by the legislature. We consider this criterion inferior to the "fiscal neutrality" or "wealth neutrality" criterion because there are, at least in our judgment, both philosophical and conceptual problems with the notion of "permissible variance." First, the notion seems to us to operationally define "equality of condition" rather than "equality of educational opportunity." This would pose no problems to our colleagues of socialist persuasion, but it does present some difficulties for those of us of progressive orientation. We do not feel that equality of expenditure or of revenue levels is required under a progressive approach to education. In fact, inequalities in expenditure levels are required if the expenditure levels are to respond to different levels of educational need in different districts.

However, we cannot ignore disparities in expenditure levels or in revenue levels between school districts for several reasons. In the first place, many court decisions have turned simply upon disparities in per pupil expenditures or per pupil revenues between districts, regardless of what the authors of this study happen to think about that kind of criterion. We would also have to agree that very large disparities in revenues or expenditures do suggest inequities that should be more fully investigated. We suspect that such an investigation would show that some of these expenditure differences are "legitimate" and some are not. Those that are legitimate will likely be based on different needs between districts or perhaps different geographic locations in the state, e.g., geographic price differentials. Those that are "illegitimate" will be based on wealth-generated differences in expenditure levels. Expenditure differences generated by differences in willingness to tax present special problems. Some students of the subject accept differences in revenue levels generated by differences in tax levels as "legitimate" and some do not. Those that do hold that differences in local willingness to tax are legitimate find useful a concept of "conditional" wealth neutrality that has been developed and used in other evaluations by the Center.[12] However, the concept used in this report is "absolute" or "unconditional" wealth neutrality; that is, revenue or expenditure levels should not be a function of local wealth, nothing whatever withstanding.

It should also be noted that there are ways of looking at revenue or expenditure disparities that are fully acceptable to most progressive analysts as opposed to those with more socialistic orientations. For example, it can be held that the primary responsibility of the state government is to help poor school districts or low-spending districts. Concomitantly, the state has little or no responsibility for high-spending districts. If that is the value position, then the disparity of expenditures below the median, or below some other point in the distribution, becomes the focus of attention rather than the distribution of all the expenditures about their central tendency. Professor Eugene McLoone of the University of Maryland has devised ways of looking at the low end of the distribution alone, and these are utilized below. However, in this report, we do continue to judge the Illinois general grant-in-aid system as successful if it reduces the variation about the mean between school districts, and to hold it unsuccessful if it does not. We find this criterion, however, far less satisfying than in previous reports.

In summary, this report evaluates the Illinois general grant-in-aid system over an eleven-year period of time in terms of criteria which will hopefully contribute to a rational public policy discussion of the major goal of "equalizing educational opportunities." Readers who do not find this goal very high upon their own list of priorities for Illinois education may not wish to proceed much further. Specifically, a concept of "fiscal neutrality" or "wealth neutrality" is used, as well as a notion of "permissible variance." These are considered aspects of equity between students. Obviously there are many, many things about the Illinois K-12 finance system that this report does not attempt to evaluate. Not much attention is paid in these pages to "taxpayer" as opposed to "student" equity, although other publications of the Center have addressed aspects of that problem.[13] As in previous reports in this sequence from the Center, no attempt is made to evaluate the equity aspects of special-purpose or categorical grants-in-aid. Again, other publications of the Center have attacked this problem.[14] Perhaps more importantly, other values, criteria, goals, and so forth of school finance systems are not examined. For example, the notion of "adequacy" is not addressed herein. Investigations of what constitutes a good "basic" education and whether that "basic" level of education is available to all citizens in the state are important policy questions, but ones not addressed in this report. Further, the concepts of "efficiency" and "need" are also not addressed, nor is the important matter of just what has been purchased with the "reform" monies. This severe restriction of scope follows from the initial request of the School Problems Commission in 1974, which was to evaluate the equity effects of the general grant-in-aid system. To do that thoroughly, and to do it over a fairly long period of time, we have had to marshal our limited resources very carefully. The evaluation reported here, therefore, must be considered but a partial evaluation of the Illinois K-12 finance system. We can only hope that it is sufficiently thorough that it will stimulate evaluations that are broader in scope.

SOME PRIOR EMPIRICAL STUDIES OF EQUITY

When the Center published its first evaluation of the equity aspects of the 1973 Illinois school finance reform in early 1975, there were few other studies to use as models of equity evaluations of school finance reforms. In fact, the Center had to create a number of techniques to operationally define equity goals since so few studies had been done in that area.[15] The situation has changed greatly in the last nine years. A number of multi-state studies of the effects of school finance reform have taken place. Early efforts by Callahan and Wilken[16] and by Brown, Ginsberg, Killalea, Rosthal, and Tron[17] yielded mixed results concerning the effectiveness of these reforms. The monitoring attempt by the National Center for Educational Statistics yielded more optimistic conclusions,[18] while studies at the Rand Corporation by Carroll[19] were, by contrast, essentially pessimistic in tone. The very important, extensive, and comprehensive work of Berne and Stiefel[20] demonstrated clearly just how hard it is to summarize equity data over a large number of states. Berne and Stiefel, nevertheless, made major methodological contributions to this area of school finance research. Recent research conducted at the Center comparing equity in Illinois with equity in Indiana and Iowa did support the position that progress had been made on the goal of fiscal or wealth neutrality, but that there were considerable differences from state to state.[21]

Studies of individual states continue to outnumber the multi-state studies, if only because of the complexity and cost of doing multi-state studies. Studies of reforms of individual states such as those of Missouri and Colorado by Odden,[22] Pennsylvania by Harris,[23] Rhode Island by Ward,[24] Virginia by Salmon and Shotwell,[25] Ohio by Harrison,[26] and Michigan by Phelps,[27] indicate less than completely satisfactory results. Two studies, both covering four-year time periods, are of particular interest to the longitudinal efforts undertaken in this study. A study of New Jersey by Goertz indicated that both in terms of revenue disparity between districts and in terms of fiscal neutrality, New Jersey was worse off at the end of the four-year time period than at the beginning of that time period. Of particular importance was the finding by Goertz that, "In the last three years, the average per pupil valuations in the poorest districts increased 15 percent, while those in the wealthiest ones rose nearly 40 percent. As a result, the state has been running hard just to stay in place."[28] This is a matter of some importance. If local school districts were becoming more alike with regard to property valuations with the passage of time, less dollars would be needed from the state level to equalize differences between local school districts. However, if the opposite is true, then more state dollars are needed just to preserve whatever equalization of educational opportunity currently exists in the system.

A second study of Pennsylvania by Fowler and Freir was also conducted over a four-year period of time and was, therefore, of special interest to us.[29] Their findings are remarkably similar to those of Goertz; e.g., the state was worse off after the reforms with respect to both disparity and wealth neutrality than before the reforms. However, Fowler and Freir note in their findings on fiscal or wealth

neutrality do vary depending on whether property valuations or income is used as the measurement of local district wealth. If income is used as a wealth specification, then the state did show gains on wealth neutrality over the four-year period. This becomes a complicated issue in Pennsylvania because the state changed its official definition of local ability to support education from property valuations alone to a combination of property valuations and income. The measurement of fiscal or wealth neurality through time is, therefore, difficult. Some of the concerns of the Goertz and the Fowler and Freir studies have been built into this evaluation in Illinois. The complexities of measuring the equity effects of school finance reform are such that the "jury" may have to wait quite some time to reach a definitive verdict. However, that jury is probably not much impressed with the present admittedly incomplete evidence we have concerning the success of the K-12 finance reforms of the early 1970s. A forthcoming special issue of the Journal of Education Finance will cast further light on this subject.

THE MONITORING TECHNIQUES

Illinois was one of the first states to begin experimentation with the measurement of equity goals.[30] This was largely due to the interest of the Illinois School Problems Commission in the measurement of equity goals. That Commission has faithfully funded research on the attainment of equity goals from 1975 to the present. Thus, even if the actions of the General Assembly did not move the state toward those equity goals, it is still true that individual legislators, and perhaps equally important, legislative aides, remained interested enough to finance the monitoring of progress toward or away from those goals through time. It is also true that the interest of the professorial group in equity goals has never faltered and remains high to this day.

The measurement of equity goals has been a favorite topic in school finance literature for over a decade. However, since the purpose of this monograph is not to try to add to that methodological literature but rather to report on what happened in Illinois and even more important to try to interpret why it happened, we shall try to keep the methodological commentary down to a minimum. Since the monograph is directed, however, at an audience that is more sophisticated than the average interested citizen, we need to provide enough information so that what has been done can be duplicated in other states or by other researchers in Illinois.

First, a comment upon the revenue distribution being monitored and the unit of analysis being used: the revenue described herein is the general state aid plus the revenues locally raised. While in other studies at the Center for the Study of Educational Finnace at Illinois State University these two sources of revenue have been analyzed separately, the full time series used since 1973 does combine the two sources. Thus the equity indexes computed in this article reflect the combined effect of both state and local actions. Note also that no state categorical monies are included in the analysis. Coombs has recently completed an analysis of the equity effects of the Illinois categoricals and finds that they are relatively neutral if taken in toto. However,

individual categoricals have quite different equity effects.[31] Thus, what we have in this article is an evaluation of the equity effects of the general state aid system plus local revenue actions, not an evaluation of total state aid. Further, no federal dollars are included in this analysis.

It should also be noted that this analysis is done in terms of revenue per TWADA, Title I Weighted Average Daily Attendance, which is the weighted student unit used over the last decade to distribute Illinois general purpose aid. Different results can be obtained from an equity analysis that uses an unweighted student measure such as simple Average Daily Attendance (ADA). Essentially, this means the flow of funds for the very important "poverty impaction" part of the Illinois formula was treated as general state aid, not as categorical funding. The authors think this is consistent with the intent of the General Assembly at the time of passage of that provision, but recognize that this matter remains controversial. There is also a school of thought which believes those poverty impacted funds distributed through the general formula were meant to be "targeted" monies. If that line of thought were followed, it would be necessary to exclude the funds delivered by poverty impaction before the equity indexes were computed, and that would assuredly lead to different values for the several indexes.

There is no sampling used in this study, therefore significance tests for the purpose of statistical inference are not appropriate. However, the population utilized is not a complete one. There is some missing data, but the more important problem is district consolidation and reorganization over the eleven-year time span. Here, what is a major public policy liability in its own right becomes an asset to the empirical researcher. It happens that there has been very limited consolidation and reorganization in Illinois over the last decade. This is a very important part of the equity problem, but it also causes us to have to drop very few districts from the longitudinal analysis. The population for which the equity indexes are computed are therefore the 1,100 school districts divided into three subpopulations: elementary, high school, and unit (K-12). Hinrichs has recently conducted research for the Center which creates "pseudo-unit" districts and then recomputes all the equity indexes through time.[32] Hinrichs' study adds information on the possible equity effects of abolishing dual districts in Illinois. It also shows that the results reported in the Center's studies which use three subpopulations are not greatly different from the results obtained when using a single population of artificially constructed unit districts. It is more difficult to get an equity picture of the "state as a whole" when using three subpopulations, but the Hinrichs' work shows that the long run trends reported here are not artifacts of using the three subpopulations.

Let us now turn to a description of the equity indexes themselves, beginning with disparity indexes, e.g., indexes which show the variation in revenues per pupil between school districts. The authors have continued to label these "permissible variance" despite their growing dissatisfaction with the whole concept. The basic assumption behind that measurement is that disparities are too great between school districts and should be reduced by the actions of state government to some

"permissible" variation. However, by no means are all "authorities" in school finance of the opinion that the total variation in revenues should be reduced toward the mean. Garms and others[33] are of the opinion that if individual student needs and individual district needs are fully taken into consideration, then the requirement that successful reform must reduce the overall revenue disparity between districts is called into serious question. Some courts have tried to avoid this tangle by requiring the reduction in the variance of revenues to be that which is not directly linked to educational needs. That is, "targeted" revenues directly linked to individual student needs are considered "legitimate" sources of revenue variation. This is another good reason for excluding, as was done here, all categorical funding from the equity calculations.

The first disparity index is simply the "coefficient of variation," that is, the standard deviation divided by the mean and multiplied by 100. Berne has found this to be a reliable measure of disparity.[34] This is appropriate if one feels that high spending districts should be held back in their spending in order for low spending districts to "catch up." However, there is another school of thought in school finance which holds that revenue variation above the median, or some other point in the distribution, should not be reduced. This group believes that the only legitimate concern of state government is with the revenue per pupil variation below some measure of central tendency. This group believes that "bringing up the low-spending districts" should be the primary concern of the state, and that higher spending districts should be allowed to move out in front as much as they wish. In terms of political philosophy this position is probably closer to the notion of "equality of opportunity" than to the notion of "equality of condition." A number of older school finance scholars held to this policy position, not the least of whom was the late Paul Mort of Columbia University.[35] Professor Eugene McLoone of the University of Maryland has been an advocate of this position in the modern era.[36] McLoone devised several indexes to look at the bottom half of the revenue distribution only. The one used in this study is based upon the total revenues below the median, divided by the total revenues below the median plus the amount of revenue required to bring all students to the median revenue per pupil. Thus the larger the fraction, the closer the approach to the desired state of affairs. This is the only equity index in the study in which the larger values are preferred to smaller values. In the case of the "coefficient of variation" smaller values are more desirable, and that is also true with the fiscal or wealth neutrality indexes described next.

In addition to the two disparity or "permissible variance" criteria, two additional indexes of "fiscal or wealth neutrality" have been used. The basic assumption behind this measurement is that revenues should not be a function of local district wealth. Thus, measurements of association, rather than measurements of dispersion, are of interest. There are many measurements of association ranging from the simple Pearson product moment correlation to the more complicated "wealth weighted" Gini procedure described below. A fundamental problem with measurements of association is whether one wants each unit of analysis to have the same effect on the index of association or whether one wants units of different size to have differential effects. In school finance terms, does one want

Chicago to count the same as the smallest district in the state or should one weight the districts by the size of their student populations? Early in its efforts, the Center for the Study of Educational Finance at Illinois State University modified the traditional univariate Gini Index, which is calculated in student terms not district terms, to be useful in school finance studies. This usage is to be contrasted with the conventional usage in economics, which is based upon a single variable and is, therefore, another measurement of dispersion or variation.[37] Basically, what we have done with this "wealth-weighted Gini" is to rank the school districts from low to high upon some specification of wealth. In the study reported here, wealth happens to be property valuations per pupil. This is done prior to the calculation of the Gini coefficient. This results in a situation in which a zero value on the Gini index would indicate perfect fiscal or wealth neutrality and all higher values would indicate a movement away from fiscal or wealth neutrality. For full descriptions and computer programs, application should be made to Dr. Ramesh B. Chaudhari.[38] Appendix A provides a brief explanation.

The more conventional approach to wealth neutrality is the linear least squares regression in which revenues per pupil are regressed upon some measurement of wealth per pupil—normally property valuations per pupil or income per pupil. The variables are sometimes transformed into their logarithms and this transformation renders the coefficients an "elasticity." Again, Berne has found that this simple elasticity is a reliable measurement of wealth neutrality.[39] It should be stressed that this is "simple" or "unconditional" wealth neutrality. When the relationship between wealth and revenues is required that is independent from other variables such as local tax rate, then "partial" elasticities would be needed. It can be argued that through at least a portion of the decade under analysis in Illinois, a "conditional" approach to wealth neutrality would have been more appropriate since the state did encourage districts to have different tax rates, that is, they provided "reward for effort." And in fact the Center did compute "partial" elasticities for a portion of this period.[40] However, over the whole eleven years, in the authors' opinion, the simple or "unconditional" relationship between local wealth and revenues is the more appropriate measurement, since later in the period the state started phasing out "reward for effort." Garms is a good reference for those interested in multivariate approaches to the measurement of wealth neutrality.[41]

When using the regression approach to wealth neutrality, both a weighted and an unweighted approach was used. In the unweighted regression each school district has the same effect on the equity index, e.g., Chicago has the same effect as the smallest district in the state. In the weighted regression approach, the larger districts have more of an effect on the index than do the smaller districts. In a sense, the weighted regression approach transforms the analysis from the district as the unit of analysis to the student as the unit of analysis. Thus, the weighted regression approach is on par with the wealth-weighted Gini technique, discussed earlier. In terms of practical politics, it may be necessary to continue to report results in both unweighted and weighted terms. This is the case because when weighted procedures are used what happens to Chicago and a few other large districts determines what

happens to the entire index. In terms of votes in the General Assembly, however, what happens to all school districts, regardless of size, is still important. It might be that the lower house of the General Assembly might be more interested in the weighted analysis and the upper chamber might be more interested in the unweighted analysis.

THE RESULTS OF THE MONITORING

The results of the monitoring are presented in seven tables. The first two relate to the "permissible variance" notion and the last five relate to the "wealth neutrality" notion. The balance is deliberate. Although courts will likely continue to use simple disparity notions to measure conformity with "equal protection" clauses in state constitutions, enough doubt has been cast on what constitutes "legitimate" revenue variation that a better conceptual basis for equity can be found in the "wealth neutrality" notion. However, stressing the "wealth neutrality" notion does move one toward the "equality of opportunity" goal rather than toward the "equality of condition" goal.

Table 1* shows that disparity among Illinois elementary districts decreased until 1976-77 and then increased on an irregular basis until the last point measured in 1982-83. It also indicates that any gain made by the reform of 1973 was lost as early as 1980-81. Disparity for Illinois high school districts decreased until 1977-79 and then increased on a regular basis until 1982-83. The effects of the 1973 reform have not quite been lost, since the 1982-83 figure is slightly below the 1972-73 figure, which was for the year before the 1973 reform. In all the tables the 1972-73 year was the year preceeding the 1973 reform. For unit districts disparity decreased until 1976-77 and then increased on an irregular basis until 1982-83. The effects of the 1973 reform were lost by 1980-81, although the series is irregular in the last three years. If the courts in Illinois were to follow the tradition of requiring a reduction in revenues per pupil between districts, then they would have to conclude that a reduction in "permissible variance" has not occurred since 1976 or 1978.

Table 2 presents a somewhat more optimistic note, in fact the only optimistic note in this study. The McLoone index is much more irregular than the coefficient of variation; however it is apparent that the values for the last two years in the time series for unit districts and for elementary districts are higher than they were at the beginning of the time series. This means that the lowest revenue per pupil districts did make some progress in closing the gap between themselves and the districts at the middle of the distribution. However, the gain isn't much, and the situation with high school districts is not so optimistic. The high school districts were better off in the middle seventies than in the early eighties. It also appears that if there was any effect here springing from the 1973 reform, it must have been a rather delayed effect. Further research might well be conducted on the very lowest spending districts to document their gains during this period.

*Tables and Charts are in Appendix A.

The first table showing the wealth and revenue relationship is Table 3. When the "wealth-weighted" Gini procedure is used, the Illinois elementaries show progress until 1976-77.* From that point to the present the situation gets progressively worse. High schools show gains until 1977-78 and then the situation also becomes progressively worse. For unit districts, revenues were less dependent upon wealth until the late 1970s. In fact, during the period from 1976-77 through 1979-80 the dependence of revenues on local wealth was so slight as to produce difficulties in monitoring the relationship by this Gini procedure. However the last three years have shown more of a dependence of revenues on local wealth in Illinois unit districts. For high school districts and unit districts the effects of the 1973 reform have not been entirely lost, but for elementaries they have been lost.

Tables 4 and 5 use the regression approach to wealth neutrality and base the results on using property valuation per TWADA as the measure of wealth. Table 4 uses an unweighted approach, e.g., all districts have equal effect regardless of size, while Table 5 uses a weighted approach, e.g., the larger districts have the greater effect. In both cases the time series show the curvilinear effect with improvements registered up until the middle seventies and then a deterioration until the present time. For elementary districts, all gains of the 1973 reform have been lost. High schools and units have, however, not quite lost the gains of the 1973 reform and that is especially true for unit districts when a weighted approach is used. When large cities are allowed to have a disproportionate effect on the index, the equity index seems to be holding for unit districts at about 1975-76 values. The equity picture is not quite as dismal as when looking only at revenue disparities, but no court could conclude from this evidence that Illinois was making steady progress toward reducing the relationship between wealth and revenues.

Tables 6 and 7 repeat the wealth neutrality analysis using income rather than property valuation as the measure of "wealth." Until quite recently these time series have produced more optimistic results than the time series using property valuation per pupil. However, those optimistic results may have been the result of using relatively old income data in the analysis. When the more recent 1980 income data from the last census of population and housing is used in the 1981-82 and 1982-83 time spots, the irregular but constant improvement of Illinois districts comes to an end, and the relationship between wealth and revenues starts to increase. For the unweighted analysis, and even for the weighted analysis for elementaries and high school districts, the results of the 1973 reform are now gone. Only when the large cities are allowed to count disproportionately can one see gains lasting until 1980-81. One doubts if these gains were due to the effects of the 1973 reform since they occurred in the late 1970s. Further research might well concentrate upon the gains registered by the large cities in the late 1970s and the deterioration that seems to have set in during the early 1980s.

*Computation of the Gini Coefficient may be found in Appendix B.

INTERPRETATIONS AND PROGNOSIS

No one set of circumstances brought about the decline and fall of the Roman Empire, and similarly no one set of circumstances brought about the downfall of equity reform in Illinois. Certainly at the head of the list, however, has to be the smaller and smaller amounts of new state funds that were available after the middle 1970s. This is true for several reasons. As many observers have pointed out, reform succeeds best when the funds are available to "level up." That was true in the early 1970s but ceased to be true in the late 1970s, and was entirely absent in the early 1980s. Also new state funds are needed for the "side payments" that are necessary to secure allies in the General Assembly. Without those "side payments" the votes for the "reform" are not forthcoming. The smaller amounts of new state funds are, of course, related to the general health of the Illinois economy. While perhaps not quite in the dire straights of its neighbor, Michigan, the Illinois economy has been far from healthy in the last part of the decade of the 1970s and the first part of the 1980s. It may be true, as has been suggested by Fuhrman, that "reform" in the future may be limited to the more fiscally healthy western and sun-belt states[42]—a sad prognosis for poorer school districts in the older eastern and midwestern states.

Other phenomena have also been noted that contributed to a decline in equity goals in Illinois. When wealthy districts become wealthier and are able to pass referenda more than poor districts, then the state must do more, not less, to assist the poor districts. But that did not occur in Illinois. The state did less, rather than more, and in fact shifted some of the state funds to wealthier districts. "Reform" also takes a big bite out of the state budget. If one is intent on really moving strongly toward equity goals in K-12 finance, then less is going to be available in that state budget for post-secondary education and, more importantly, less is going to be available for noneducational public functions such as welfare, health, transportation, etc. However, when the state tumbles into a recession and greater, not less, dollars are needed for welfare, then it is difficult to find the funds in the state budget to accomplish any kind of school finance reform. It is also true that equity reforms depend primarily upon the flow of funds through the general aid formula. To the extent that funds must be spent in categoricals, less will be available for reform purposes through the general grant-in-aid. Equity goals can, of course, be accomplished through the various categorical grants, but this takes a great deal of effort and planning and that is not always present.

Reform also takes considerable pressure from the judicial branch of government, although the late 70s and early 80s do not seem to be hospitable years for plaintiffs in institutional challenges.[43] It is true that Illinois has had only a few constitutional challenges to its K-12 funding system, and none of them were mounted on the scale seen in California or New Jersey. Nevertheless, in the early 1970s the threat of such a major challenge was clearly there. At present there seems little inclination to litigate the education article of the Illinois Constitution. However, litigation may well be the only hope the

reformers have left in Illinois if the state budget remains as tight as it is at present. Interest in equity comes and goes in the legislature, but the Constitution endures, and there is always the hope that some plaintiff will mount a challenge based upon the school finance facts. The existence of the "poverty factor" in the Illinois grant-in-aid formula makes it difficult for the large cities to bring such a constitutional challenge as they have in other states. However, this factor has been weakened in recent years, and at some point the large cities may feel that they could mount a successful challenge to the system in spite of the existence of the factor. Should the TWADA factor be removed from the Illinois formula, the large city districts would probably be in the courts within a matter of hours.

With regard to the "politics of school finance reform," it seems the wealthier districts regrouped and led a successful charge after having been caught off-guard by the 1973 reforms. It can be doubted if the wealthier districts will ever be caught off-guard again. Poor school districts are seldom as effectively represented in the legislature as are the wealthy ones; however, there exists a group of legislative aides who tend to look after poor school districts' interests without any form of compensation for doing so. It is unfortunately true, though, as has been pointed out by Brown and Elmore,[14] that the proponents of equity lack a solid base in most state legislatures. The strong base of the equity proposal is in the halls of academe and sometimes in the chambers of the courts. In the legislature, the many divisions between rich and poor schools, between management and labor, between Chicago and "downstate," between various types of districts (K-12, high school, and elementary), between proponents of general state aid versus categorical aid, between hustlers for higher education versus advocates for the K-12 jurisdiction, all tend to cut into shreads any equity coalition that might emerge. And the reformers do grow older, are weakened by ill-health, retire, and have various other things happen to them. Members of the legislature with interests in equity also retire, are not returned to their seats, and, even more frequently, take up other interests in education or leave the education area entirely. School finance is an area now beset by great controversy and much more heat than light. There are not many votes to be gained by being involved in such a highly controversial area and, in fact, a considerable number of votes might be lost for a young legislator who becomes involves with educational finance. Legislators with abiding and continuing faith in equity goals <u>do</u> exist, but they are rare jewels indeed.

So the authors find the prognosis for further equity reform in Illinois poor indeed for the immediate future. In fact some of the more experienced "Springfield hands" now refer to the early 1970s as the "golden age of K-12 finance" that will simply never come again. We are not quite that pessimistic, but it is clear that most of the factors that led to the decline will have to be reversed before any momentum toward the attainment of equity goals can be regained. First and most important, the general Illinois economy will have to improve so that the funds to start again the process of "leveling up" will be available. The tax increase currently being considered by the General Assembly as this

monograph was being written will not provide the necessary funds for any major recovery of the equity indexes. These tax increases are, of course, not being put forward as "reforms" but rather as "survival" tactics. It is hard to talk of Camelot when one may begin the new fiscal year $650 million in the red. At best, those tax increases alone might prevent, for a short while, the further deterioration of the equity indexes, nothing more. However, a revival of the Illinois economy together with an increase in the personal income tax rate does hold out the promise of providing enough new state dollars to restore progress toward equity goals. The current state superintendent does have a school finance reform based on the principles of the "resource cost model" which might do something for equity in Illinois.[45] However, those plans have been placed on the "back burner" while the legislature goes through the current tax increase struggle.

In sum, more pressure from the courts will have to occur; more effective political mobilization of poor districts will have to take place in the General Assembly; younger and healthier leaders of the reform will have to be found both in the universities and in the General Assembly; and economic recovery will have to take place; a personal income tax increase will have to be passed; professional educators will have to form better coalitions than they have thus far been able to do. To be sure, all of this could happen. However, if one "reforms on a rising tide," then the tide was ebbing in Illinois in the late 1970s and early 1980s. Whether we have as yet reached the low water mark remains to be seen. The authors tend to doubt it.

And what of the long-run prognosis for equity goals in Illinois? Lord Keynes may have been right in his reply to his critics that the long-run view was not so important because "no one lives in the long run." But one simply cannot live "in the long run" without hope. That hope we believe must lie in seeing school finance reform as only one manifestation of a much broader movement for social reform which manifests itself through the public schools, and which can also be seen to be much stronger at one time period than at another. Fortunately there is ample precedent for viewing the school finance reform movement in exactly those terms. This is, of course, a job for a social historian and not for a school finance analyst, but a starting point would be to note the background and origin of the school finance reformers themselves, and the obvious linkages between that reform group and the mid-1960s "War on Poverty" reforms and indeed the Kennedy-Johnson administration. There is, however, a very important task for the school finance analyst if this "wave theory" of school finance reform is ever to be established on a solid empirical basis. That task is to keep the series of equity measurements running over a long enough time to prove the hypothesis that a second inflection point in the curve will occur, and the indexes in Illinois will again start to rise. Unfortunately we may be talking about taking measurements over decades, not over years, and that will take rare dedication and devotion to duty from the community of scholars in school finance.

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[41] Walter I. Garms, Measuring the Equity of School Finance Systems (Rochester, NY: University of Rochester, 1978). (N.I.E. Grant 400-77-0085)

[42] Susan Fuhrman, "State Level Politics and School Financing," in Nelda H. Cambron-McCabe and Allan Odden, eds., The Changing Politics of School Finance (Cambridge, MA: Ballinger Publishing Company, 1982).

[43] See School Finance News, Capital Publications, 1300 North 17th Street, Arlington, VA 22209 (April 1983).

[44] Patricia R. Brown and Richard F. Elmore, "Analyzing the Impact of School Finance Reform," in Cambron-McCabe and Odden, op. cit.

[45] Jay G. Chambers and Thomas B. Parrish, et al., The Development of a Resource Cost Model Funding Base in Education Finance in Illinois (Springfield, IL: Illinois State Board of Education, 1982).

APPENDICES

Appendix A: Tables and Charts

Appendix B: Computation of Gini Coefficient

TABLE 1

PERMISSIBLE VARIANCE CRITERION
COEFFICIENT OF VARIATION

	Districts		
Year	Elem.	High	Unit
1972-73	29.44	28.19	14.70
1973-74	26.97	25.33	13.44
1974-75	28.23	24.26	13.41
1975-76	28.27	21.12	13.29
1976-77	26.37	18.53	12.89
1977-78	28.75	17.70	13.72
1978-79	30.22	18.23	15.71
1979-80	29.24	20.94	13.87
1980-81	33.25	24.22	16.25
1981-82	35.51	24.22	14.46
1982-83	35.71	25.02	16.69

CHART 1

PERMISSIBLE VARIANCE CRITERION
COEFFICIENT OF VARIATION

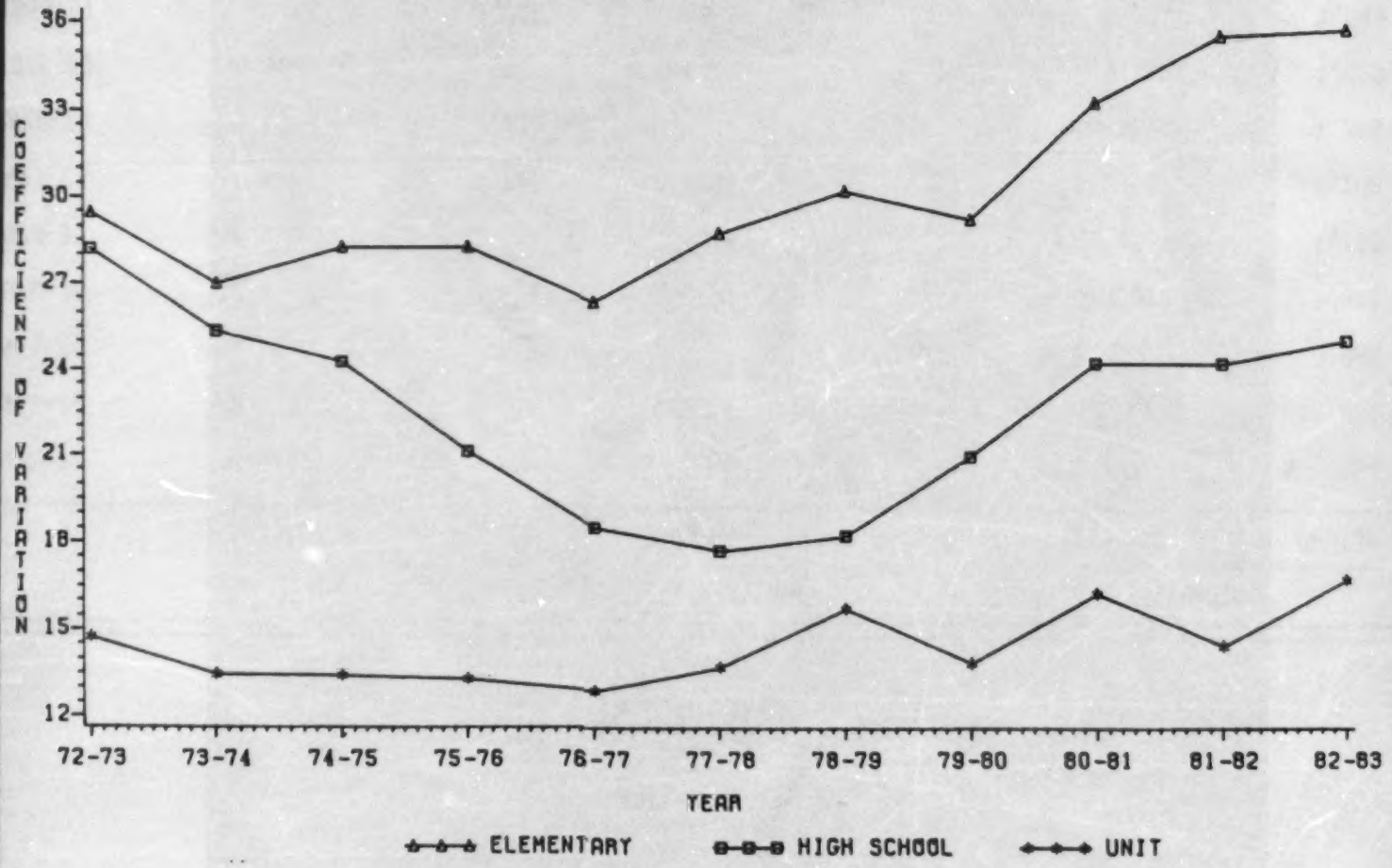


TABLE 2

PERMISSIBLE VARIANCE CRITERION
McLOONE INDEX

	Unit		High		Elementary	
	Index	Median	Index	Median	Index	Median
1972-73	0.9030	$ 798	0.8281	$ 928	0.8915	$ 764
1973-74	0.9191	862	0.8494	996	0.8767	851
1974-75	0.9216	910	0.8590	1,099	0.8469	944
1975-76	0.9373	939	0.8703	1,159	0.8833	1,011
1976-77	0.9294	1,049	0.9026	1,271	0.8862	1,117
1977-78	0.8966	1,134	0.9036	1,388	0.8853	1,208
1978-79	0.8916	1,220	0.9061	1,566	0.8832	1,329
1979-80	0.9078	1,343	0.8855	1,774	0.9186	1,423
1980-81	0.9205	1,465	0.8628	2,031	0.8905	1,643
1981-82	0.9378	1,572	0.8914	2,085	0.9272	1,684
1982-83	0.9369	1,627	0.8801	2,148	0.9146	1,755

CHART 2

PERMISSIBLE VARIANCE CRITERION
MCLOONE INDEX

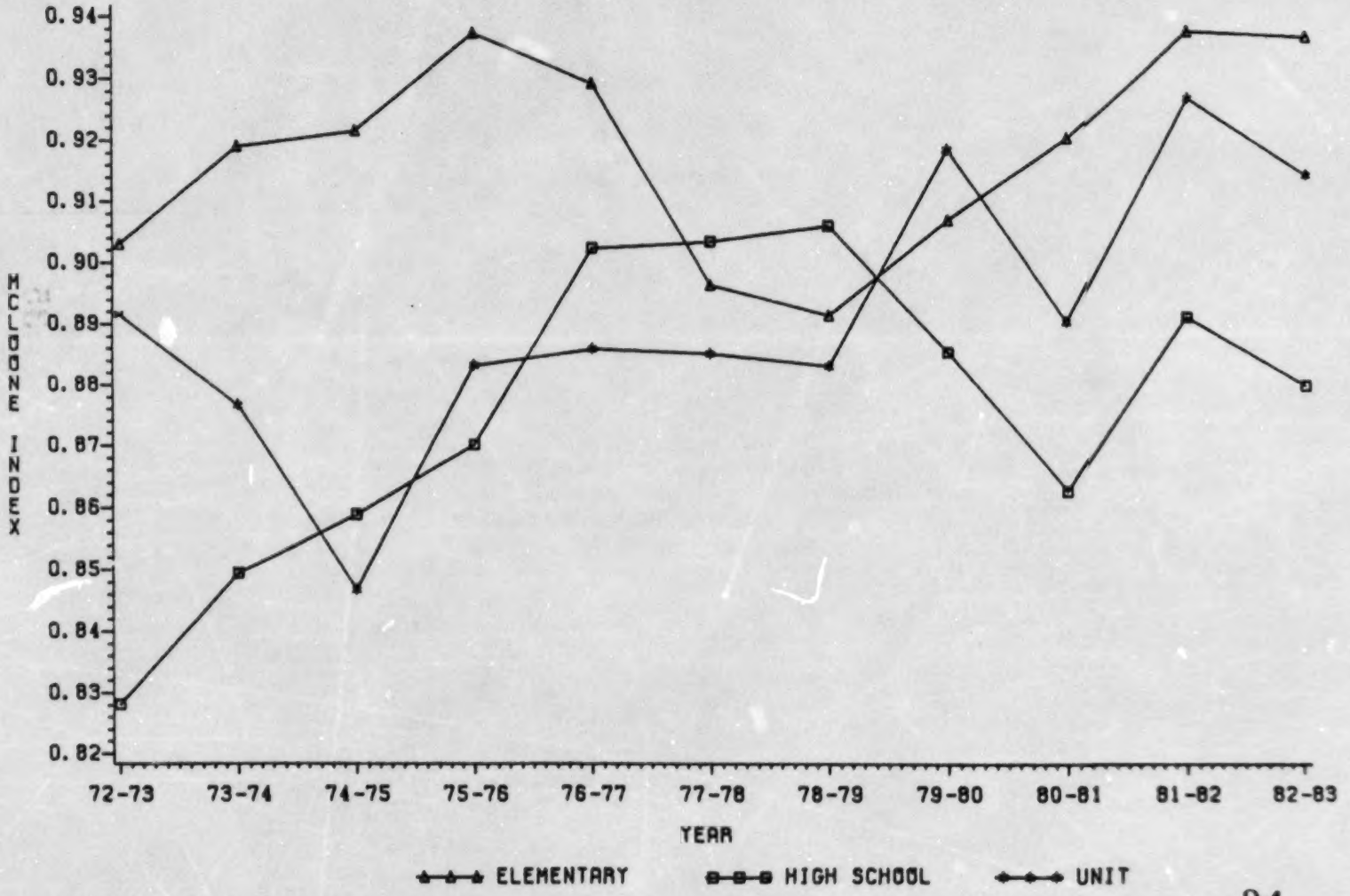


TABLE 3

WEALTH NEUTRALITY
GINI INDEX
USING PROPERTY VALUATION PER TWADA

Year	Districts		
	Elem.	High	Unit
1972-73	0.0995	0.0961	0.0345
1973-74	0.0848	0.0844	0.0265
1974-75	0.0727	0.0756	0.0143
1975-76	0.0604	0.0623	0.0018
1976-77	0.0419	0.0422	0.0055*
1977-78	0.0528	0.0399	0.0020*
1978-79	0.0691	0.0416	0.0015*
1979-80	0.0740	0.0441	0.0066*
1980-81	0.0845	0.0480	0.0123
1981-82	0.0869	0.0433	0.0133
1982-83	0.1036	0.0664	0.0164

*Lorenz Curve crosses the line. Gini coefficient is not interpretable.

CHART 3

WEALTH NEUTRALITY
GINI INDEX
USING PROPERTY VALUATION PER TWADA

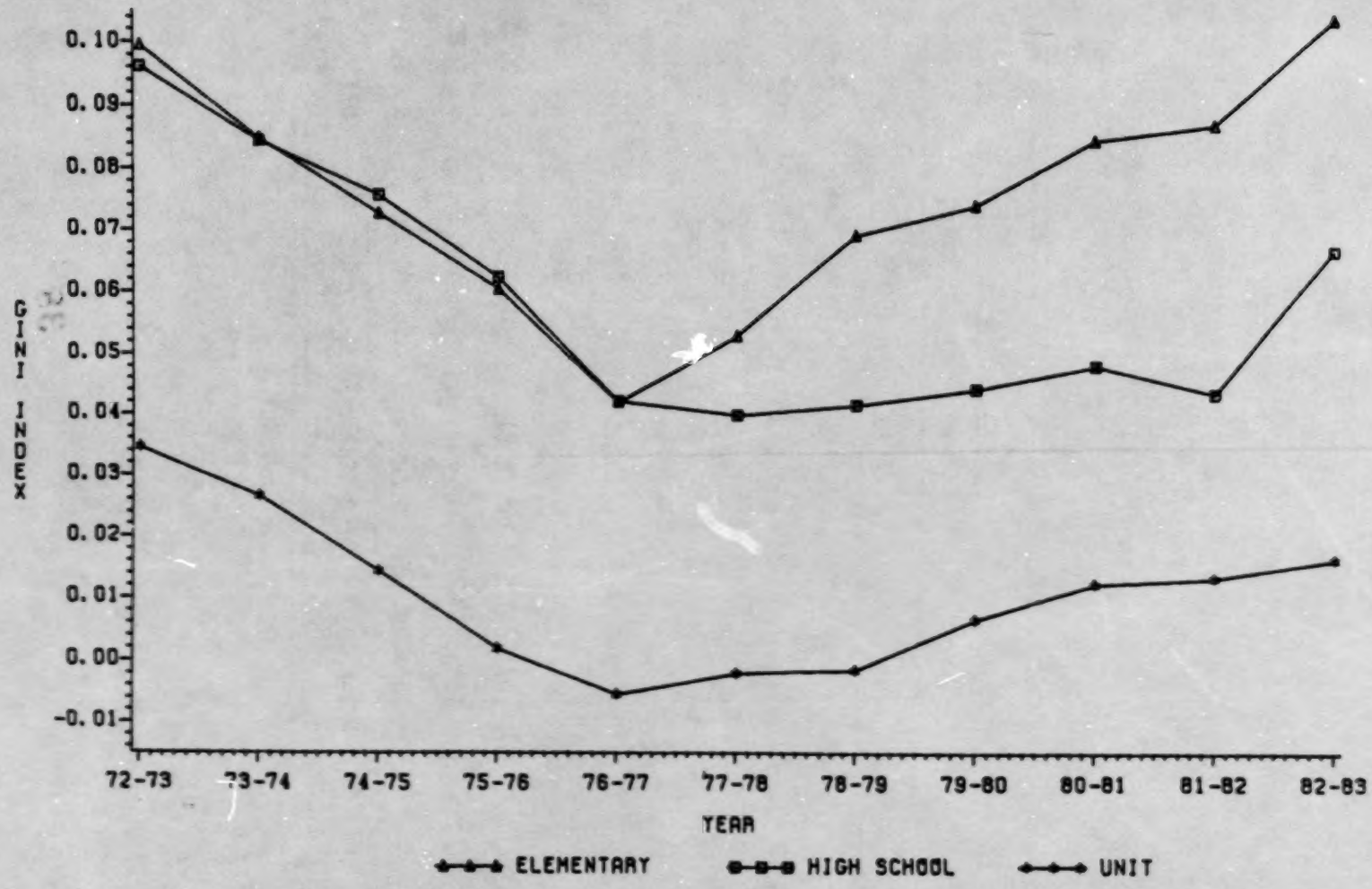


TABLE 4

WEALTH NEUTRALITY CRITERION
REGRESSION APPROACH
USING PROPERTY VALUATION PER TWADA

	Districts		
Year	Elem.	High	Unit
1972-73	0.27679	0.44843	0.21691
1973-74	0.24592	0.39949	0.17640
1974-75	0.23293	0.34834	0.13493
1975-76	0.22803	0.28896	0.10890
1976-77	0.18782	0.22161	0.03544
1977-78	0.23210	0.20868	0.07204
1978-79	0.25807	0.23793	0.11687
1979-80	0.26137	0.27476	0.12105
1980-81	0.29831	0.31092	0.15603
1981-82	0.30890	0.30534	0.14326
1982-83	0.32421	0.33405	0.17602

CHART 4

WEALTH NEUTRALITY CRITERION
REGRESSION APPROACH
USING PROPERTY VALUATION PER TWADA

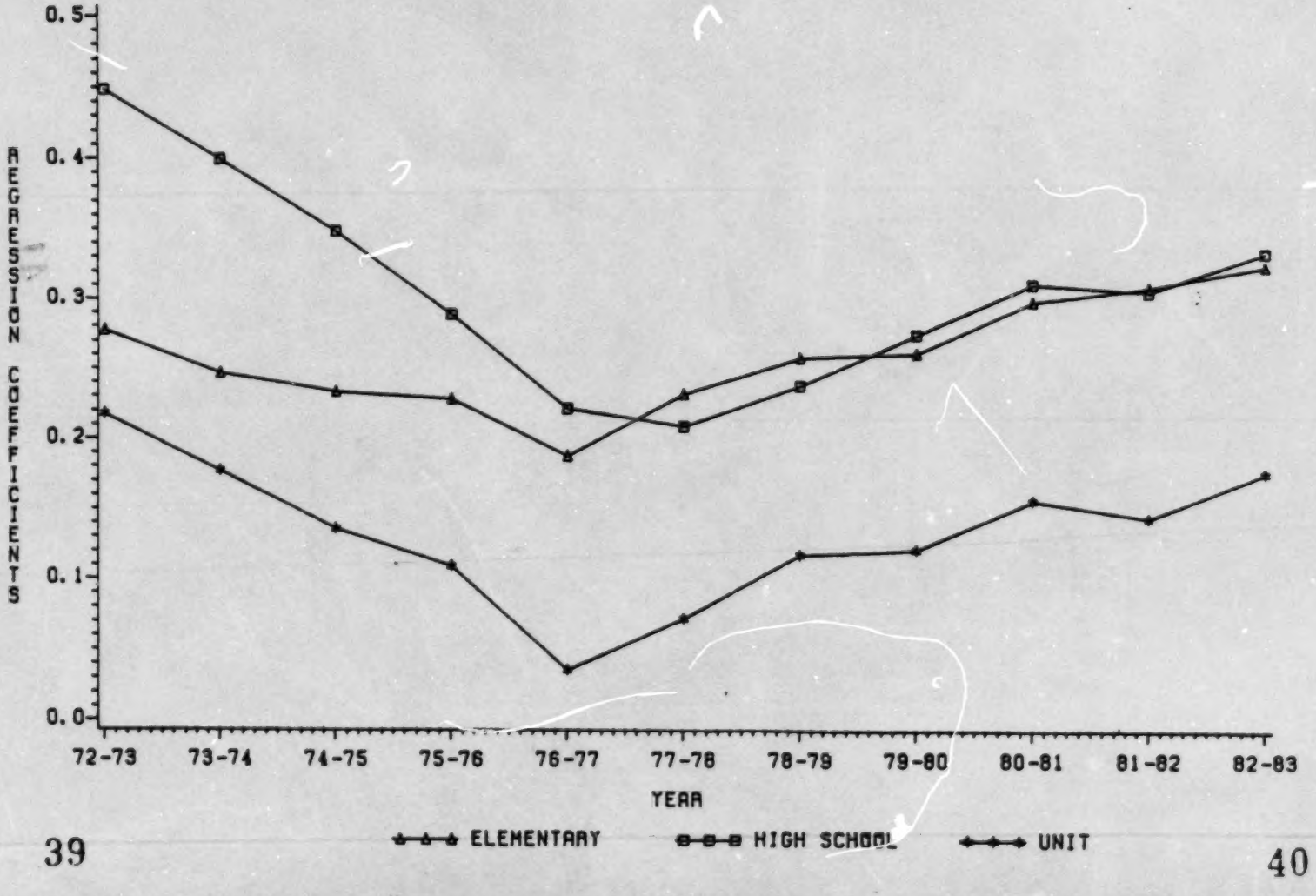


TABLE 5

WEALTH NEUTRALITY CRITERION
WEIGHTED REGRESSION APPROACH
USING PROPERTY VALUATION PER TWADA

	Districts		
Year	Elem.	High	Unit
1972-73	.2741	.4679	.2502
1973-74	.2797	.4488	.1988
1974-75	.2345	.3780	.1490
1975-76	.2117	.3115	.0778
1976-77	.1600	.2494	.0199
1977-78	.1923	.2254	.0317
1978-79	.2316	.2336	.0241
1979-80	.2447	.2566	.0506
1980-81	.2511	.2385	.0705
1981-82	.2795	.2712	.0709
1982-83	.3003	.3446	.0797

CHART 5

WEALTH NEUTRALITY CRITERION
WEIGHTED REGRESSION APPROACH
USING PROPERTY VALUATION PER TWADA

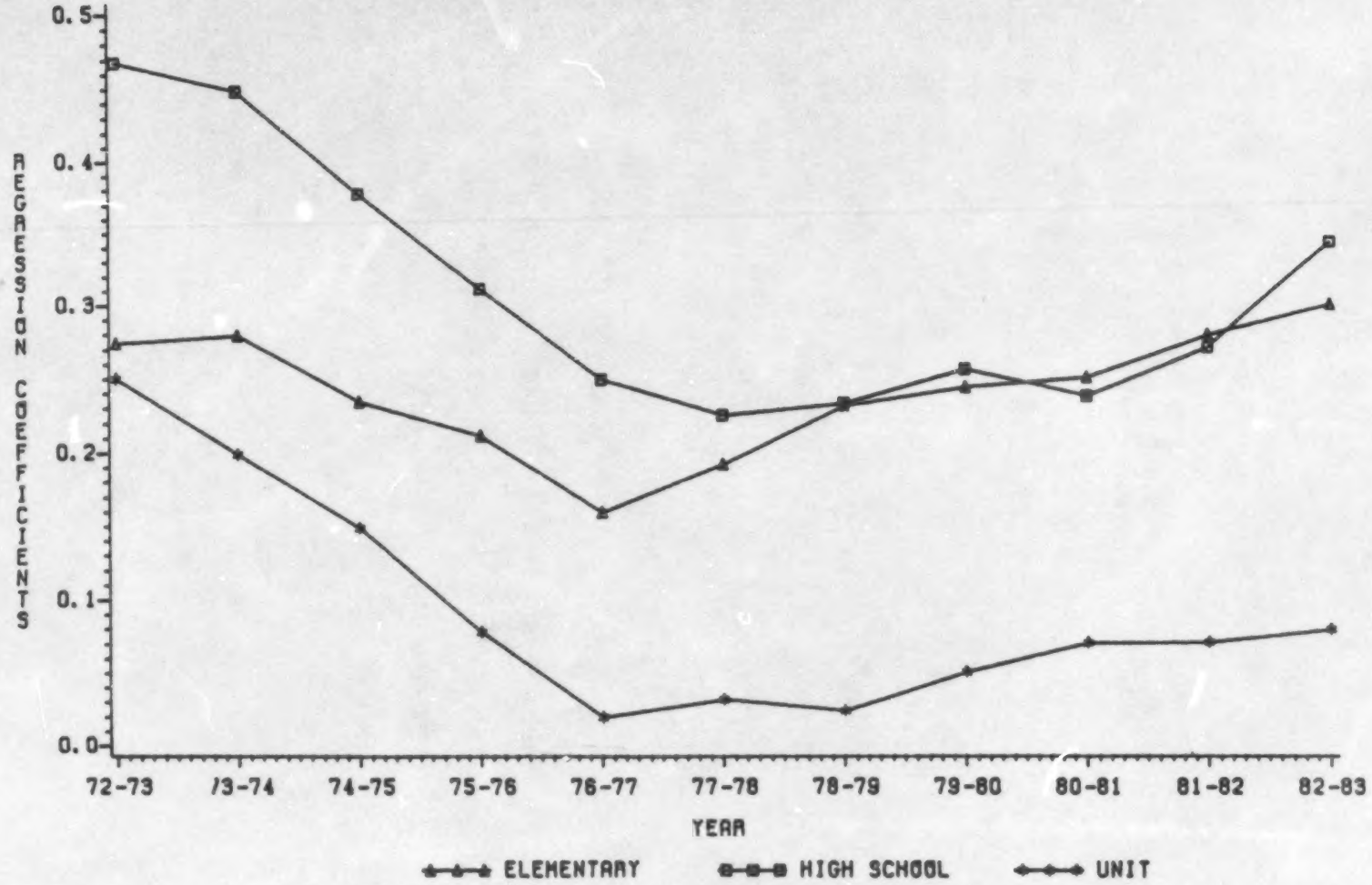


TABLE 6

WEALTH NEUTRALITY
UNWEIGHTED REGRESSION APPROACH
USING DISTRICT INCOME PER TWADA

	Districts		
Year	Elem.	H. S.	Unit
1972-73	.27738	.22835	.12495
1973-74	.23795	.22514	.19580
1974-75	.25418	.19112	.18470
1975-76	.25218	.17709	.13288
1976-77	.20221	.11094	.10917
1977-78	.19729	.10251	.11673
1978-79	.21992	.14970	.14825
1979-80	.20892	.12671	.11994
1980-81	.20000	.14780	.11361
1981-82	.26240*	.24520*	.14710*
1982-83	.29202*	.29204*	.15970*

*Note: The wealth variable in this table is derived from 1970 census data and is held constant throughout the time period, except for 1981-82 and 1982-83, when income data from the 1980 census was used.

CHART 6

WEALTH NEUTRALITY
UNWEIGHTED REGRESSION APPROACH
USING DISTRICT INCOME PER TWADA

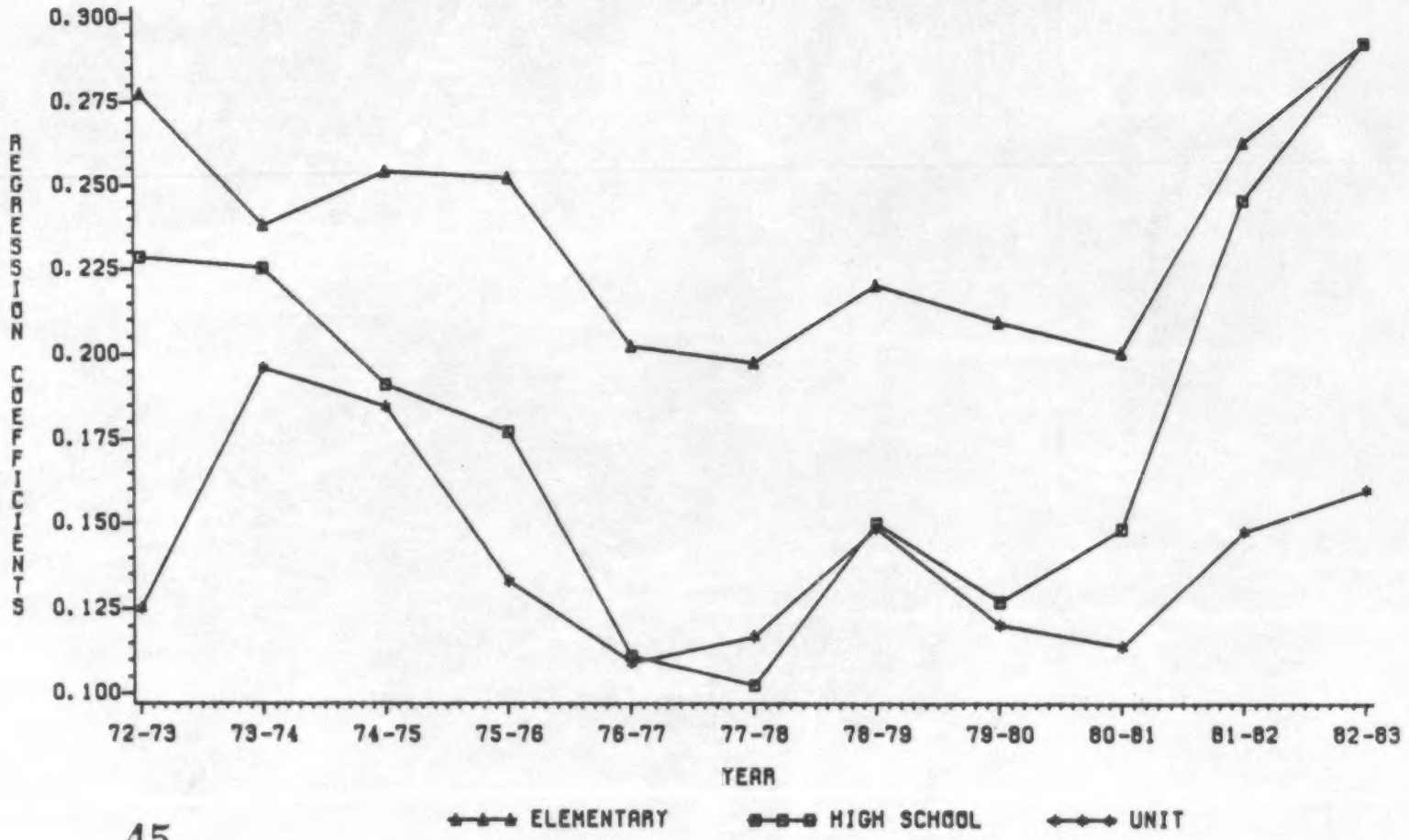


TABLE 7

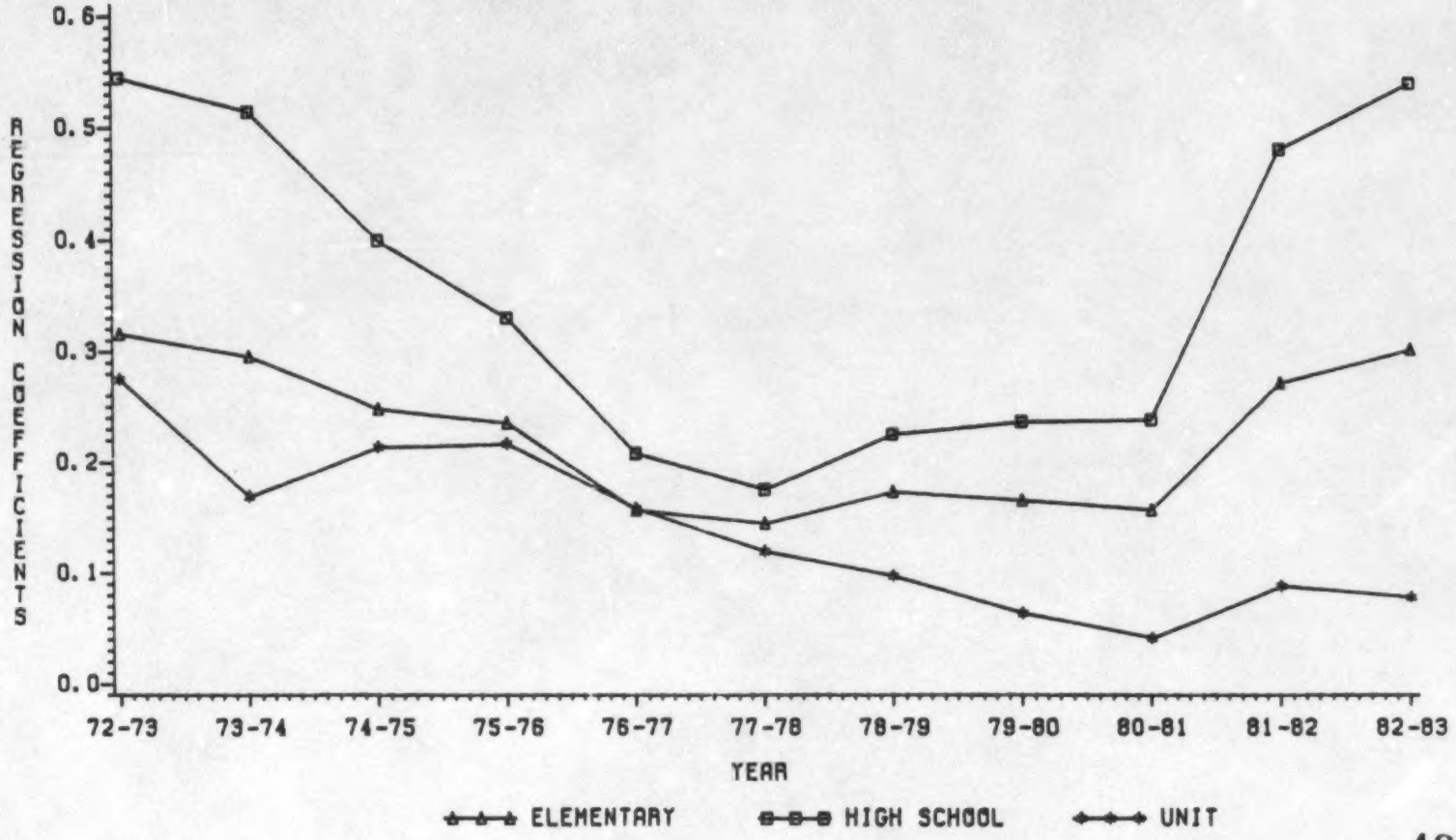
WEALTH NEUTRALITY
WEIGHTED REGRESSION COEFFICIENTS
USING DISTRICT INCOME PER TWADA

	Districts		
Year	Elem.	H. S.	Unit
1972-73	.31564	.54480	.27477
1973-74	.29524	.51499	.16953
1974-75	.24761	.40023	.21365
1975-76	.23509	.33092	.21715
1976-77	.15724	.20838	.15875
1977-78	.14539	.17587	.12030
1978-79	.17400	.22567	.09753
1979-80	.16583	.23705	.06409
1980-81	.15694	.23855	.04047
1981-82	.27126*	.48087*	.08821*
1982-83	.30257*	.53991*	.07846*

*Note: The wealth variable in this table is derived from 1970 census data and is held constant throughout the time period, except for 1981-82 and 1982-83, when income data from the 1980 census was used.

CHART 7

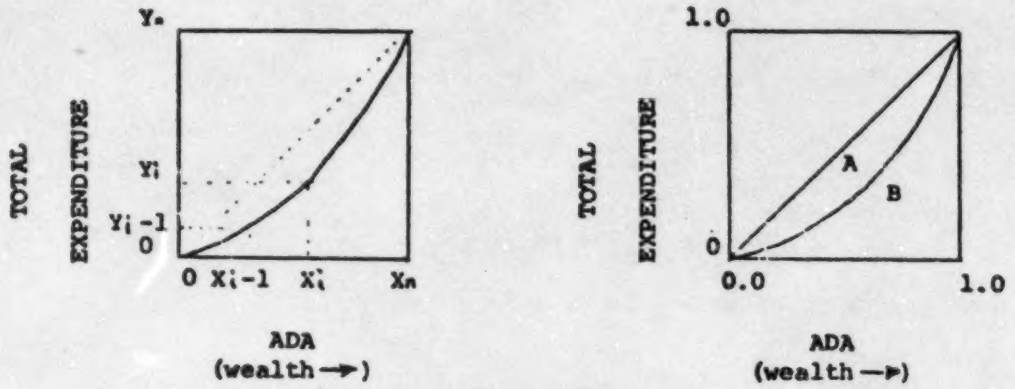
WEALTH NEUTRALITY
WEIGHTED REGRESSION APPROACH
USING DISTRICT INCOME PER TWADA



APPENDIX B

COMPUTATION OF GINI COEFFICIENT

The districts are sorted in ascending order of wealth per pupil. The cumulative proportions of pupils in the districts are represented by the horizontal axis and the cumulative proportions of total operating expenditures accounted for by these districts are represented by the



vertical axis. The curve thus plotted would be a straight line if the operating expenditures per pupil were the same in all districts. A sagging curve represents lesser expenditure in poorer districts. The measure of this inequality as defined by Gini Coefficient G is given by the formula:

$$G = \frac{\text{Area A}}{\text{Area (A+B)}}$$

or after further simplication

$$G = \frac{0{\cdot}5 - \text{Area B}}{0{\cdot}5}$$

$$= 1 - 2\text{Area B} \qquad (1)$$

Area B is the area under the curve and if n is the number of districts, and

X_i = cumulative proportion of ADA for the ith district

y_i = cumulative proportion of $ for the ith district

$$\text{Then Area B} = \sum_{i=1}^{n} \frac{(x_i - x_{i-1})\ (y_{i-1} + y_i)}{2}$$

$$\text{or 2 Area B} = \sum_{i=1}^{n} (x_i y_{i-1} - x_{i-1} y_{i-1} + x_i y_i - x_{i-1} y_i)$$

$$= (x_i y_0 - x_0 y_0 + x_1 y_1 - x_0 y_1$$

$$+ x_2 y_1 - x_1 y_1 + x_2 y_2 - x_1 y_2$$

$$+ x_n y_{n-1} - x_{n-1} y_{n-1} + x_n y_n - x_{n-1} y_n)$$

$$= (x_2 y_1 - x_1 y_2) + (x_3 y_2 - x_2 y_3) + \ldots$$

$$+ x_n y_{n-1} - x_{n-1} y_n) + x_n y_n$$

$$= \sum_{i=2}^{n} (x_i y_{i-1} - x_{i-1} y_i) + 1 \qquad (2)$$

$$= 1 - \sum_{i=2}^{n} (x_{i-1} y_i - x_i y_{i-1})$$

substituting the value of area B in eq 1

$$G = \sum_{i=2}^{n} (x_{i-1} y_i - x_i y_{i-1}) \qquad (3)$$